From: Parry, Roberta
To: Goo, Robert; Flahive, Katie; Larsen, Erika
Sent: 9/25/2014 1:18:30 PM
Subject: RE: Subsurface nutrient reductions

General comments, but mostly beyond my area of expertise.

As you know many factor come into play--soils, hydrology, depth to gw, residence time, loading rates, buffers, etc. . Nitrate can be denitrified in gw, depending on conditions, but I don't know of any processes in gw that would "attenuate" soluble P once it gets below the root zone.

From USGS, maybe one of the co-authors from this recent report, **A National Look at Nitrate Contamination of Ground Water** would be helpful.
http://water.usgs.gov/nawqa/nutrients/pubs/wcp_v39_no12/

Another interesting USGS pub that includes a map of denitrification potential in part of the MD coastal plain. http://pubs.usgs.gov/fs/fs05300/ In general, it seems that I have heard that there is a higher denitrification potential in the southeast.

You could try contacting Jana Compton or Anne Rea in ORD to see what experts they have.

From: Goo, Robert
Sent: Wednesday, September 17, 2014 3:16 PM
To: Parry, Roberta; Flahive, Katie; Larsen, Erika
Subject: Subsurface nutrient reductions

Roberta, Katie, and Erika

Are there good AG research papers and studies that would document loading reductions of nutrients due to subsurface transport (N and N complexes and soluble P), i.e., attenuation by soils and subsurface biological processes? I am on a panel trying to figure out nutrient loading reductions of onsite wastewater effluent from the edge of the discharge point (leach field) to the receiving surface water. Do you have any ideas of experts on this issue we might consult with?

Soil type etc obviously affect the reduction potential. I remember during the 1990 development of the 1st CZARA guidance that the literature was not conclusive regarding the impacts of riparian zones and buffers on nutrient reduction and land cover type and vegetation also played a role.

Robert